



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-424



MQ-9 Reaper Unmanned Aircraft System (MQ-9 Reaper)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs	3
Program Information	5
Responsible Office	5
References	5
Mission and Description	6
Executive Summary	7
Threshold Breaches	9
Schedule	10
Performance	12
Track to Budget	14
Cost and Funding	16
Low Rate Initial Production	27
Foreign Military Sales	28
Nuclear Costs	29
Unit Cost	30
Cost Variance	33
Contracts	37
Deliveries and Expenditures	43
Operating and Support Cost	44

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

MQ-9 Reaper Unmanned Aircraft System (MQ-9 Reaper)

DoD Component

Air Force

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References

SAR Baseline (Production Estimate)

FY 2011 President's Budget dated February 1, 2010

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 12, 2012

Mission and Description

Mission:

The MQ-9 Reaper Unmanned Aircraft System (MQ-9 Reaper) is a multi-mission Hunter-Killer and Intelligence, Surveillance and Reconnaissance (ISR) system, which provides the combat commander with a persistent capability to find, fix, track, target, engage and assess Time Sensitive Targets. In the Hunter-Killer mission, the MQ-9 Reaper offers the commander a choice of weapons including the Hellfire Air-to-Ground Missile, Laser Guided Bombs and Joint Direct Attack Munitions. In the ISR role, the MQ-9 Reaper's ability to fly for up to 14 hours at altitudes up to 50,000 feet while carrying up to 3,000 pounds on the wings make it the platform of choice for a number of ISR and strike missions. This ability to support a wide variety of operations results in a steady stream of requirements to develop new capabilities to support an expanding array of missions. As a result of the combat deployment of the developmental system, the MQ-9 Reaper is supported and maintained by Contractor Logistics Support personnel and organic Air Force personnel.

Description:

A MQ-9 Reaper system consists of aircraft, a Ground Control Station (GCS), a Satellite Communications terminal, support equipment, and maintenance and operations personnel deployed for 24-hour operations. The aircraft is controlled by a pilot who is located in a GCS. Control commands are transmitted from the GCS to the aircraft by a ground based datalink terminal. The GCS incorporates workstations that allow operators to plan missions, control and monitor the aircraft, accomplish reconnaissance missions, control weapons and exploit received images. The MQ-9 Reaper carries the Multi-spectral Targeting System which integrates electro-optical, infrared, laser designator, and laser illuminator into a single sensor package. The system is composed of four major components which can be deployed for worldwide operations. The MQ-9 Reaper aircraft can be disassembled and loaded into a container for travel. The GCS is transportable in a C-130 Hercules (or larger) transport aircraft or installed in a fixed facility. The ground data terminal antenna provides line-of-sight communications for takeoff and landing. The satellite communication system provides over-the-horizon control of the aircraft. An alternate method of employment, Remote Split Operations, employs a mobile version of the GCS for launch and recovery efforts. This system conducts takeoff and landing operations at the forward deployed location while the Continental United States based GCS conducts the mission via extended communication links.

In March 2006, the Commander of Air Combat Command directed early fielding to meet operational needs. To meet the early fielding date, the program was broken into two blocks with Block 1 providing initial capability to meet the early fielding date and Block 5 completing the program to the Increment I requirements as described in the CPD. Consequently, the MQ-9 Reaper Increment I program is comprised of Block 1 and Block 5 aircraft. This SAR only includes Increment I requirements. An MQ-9 Reaper Modernization program is being established in the future to incorporate additional capabilities. The MQ-9 Reaper Modernization program will have separate requirement documents.

The MQ-9 Reaper's combat potential and demonstrated combat performance fueled the rapid growth of the program. The MQ-9 Reaper program was initially managed as a Quick Reaction Capability program, a separate Program Office was established in 2006 to restructure the program to support the Air Combat Command urgent request to field the system. The MQ-9 Reaper has been actively flying combat missions in overseas contingency operations since September 2007.

The program is in concurrent capability development, procurement, combat operations and support. This situation resulted from the MQ-9 Reaper's urgent beginnings in the weeks after September 11, 2001, its growth as a Hunter-Killer to support overseas contingency operations, and the MQ-9 Reaper's evolution into the platform of choice for both ISR and Hunter-Killer missions.

Executive Summary

As of February 2016, the Air Force contracted with General Atomics Aeronautical Systems, Incorporated (GA-ASI) for a total of 263 MQ-9 Reaper Unmanned Aircraft Systems (MQ-9 Reapers). There have been 207 aircraft delivered, which include test and continuation training assets. Additionally, the MQ-9 Reaper has flown over 980,000 cumulative flight hours. This SAR is based on the FY 2017 PB for the MDAP only, which set the total number of MQ-9 Reaper aircraft to 350.

Air Combat Command (ACC) declared IOC for the MQ-9 Reaper on December 21, 2015. The signed memorandum stated the MQ-9 Reaper has met all required IOC capabilities as outlined in the MQ-9 Increment I, CPD.

In 2015, the Program Office (PO) successfully completed the execution of the Extended Range (ER) MQ-9 Reaper. ER provides an extension of range and/or endurance over the current MQ-9 Reaper configuration, which allows for increased time on station and/or mission radius. Air Force Special Operations Command is already using the ER aircraft operationally and has amassed approximately 25,000 flight hours. ACC completed ER Operational Test in September 2015 and approved fielding in November 2015. Based on warfighter requirements, the PO plans to retrofit the entire MQ-9 Reaper fleet with ER capability.

As a result of the April 9, 2014 ACC Acquisition and Sustainment Review, the Air Force Service Acquisition Executive (AFSAE), the Commander of Air Force Materiel Command, and the Commander of ACC directed the PO to develop an acquisition strategy that blends the rigor of a traditional acquisition program with the agility of a Quick Reaction Capability program. The intent of this direction is to enable the team to be even more responsive to rapidly-emerging warfighter requirements. The AFSAE approved the *MQ-9 Reaper Hybrid Acquisition Strategy Annex* to the MQ-9 Acquisition Strategy on April 6, 2015. The first hybrid procurement (e.g., Release 1) is already underway with the initial Request for Proposal released December 10, 2015, and expected contract award is March 2016.

The Block 50 Ground Control Station (GCS) development program conducted an Integrated Baseline Review (IBR) in August 2015. All actions were successfully completed, and the IBR was closed out in November 2015. The PO is on track to conduct the Preliminary Design Review in June 2016.

The original design of the MQ-9 Reaper Block 1 aircraft electrical system contained a Starter-Generator (S-G) which serves as the primary source of electrical power and a battery power backup system. During the timeframe from April 29, 2013 through December 31, 2015, there have been 96 recorded MQ-9 Reaper S-G failures which have resulted in the loss of 13 aircraft. The MQ-9 Reaper PO, through a Crisis Action Team, completed a root cause investigation. Initial results of the investigation suggested several areas of concern to include manufacturing quality, brushes and brush box alignment, commutator roundness, rotor balance, and Technical Order procedures, all of which have been addressed through changes or procedures to the system. However, to date, no root cause has been found.

The PO has implemented a series of mitigation steps to address the S-G issue. First, to prevent loss of aircraft due to S-G failure, the MQ-9 PO established the Electrical Safety Improvement Program (ESIP) to deliver a kit containing a Direct Drive Brushless Alternator which is a back-up alternator that provides up to 10 hours of MQ-9 Reaper flight time should the S-G fail. To date, 72 ESIP kits have been delivered to the Air Force and 41 have been installed on aircraft. The ESIP kit has successfully provided return-to-base power for 17 aircraft S-G failures. Second, to address manufacturing quality issues, the aircraft Original Equipment Manufacturer (OEM) is in the process of moving the S-G overhaul process to a new maintenance, repair and overhaul facility. Third, GA-ASI has also identified a potential alternate generator and is in the process of adding a second repair source. The PO is in the process of determining if this alternate S-G meets MQ-9 requirements and whether or not it would be a suitable replacement for the legacy OEM's S-G.

In the December 2014 SAR, the PO had slipped the Follow-on Operational Test and Evaluation (FOT&E) completion date by three months to April 2016 in order to address a High Outside Air Temperature (OAT) issue. The final phase of 904.6 software release completed Developmental Test on February 26, 2015, where the procedural changes addressing the overheating issue were successfully exercised. The final Thermal Management hardware solution, consisting of an internal plenum in the avionics bay, was verified during testing that completed in August 2015. Integrated testing indicated adequate

performance of the key subsystems required for successful Block 5 flight operations in High OAT conditions. Final verified and approved Flight Manual and Checklist documentation was delivered to Operational Test on November 2, 2015. FOT&E start was delayed until January 27, 2016 based on the thermal management mitigations, overlapping test priorities, and limited aircrew availability. A successful Block 5 Operational Test Readiness Review was held on December 3, 2015 where the MQ-9 Block 5 weapon system was certified as ready for FOT&E by the PEO for Intelligence, Surveillance, & Reconnaissance & Special Operations Forces. The PO continues to monitor the schedule closely to ensure it is tracking to complete within the schedule thresholds approved at the December 2013 MQ-9 Configuration Steering Board.

Five FMS Letters of Offer and Acceptance (LOAs) were signed since the 2014 SAR totaling approximately \$560M. The French signed an LOA for three MQ-9 Reaper Block 5 aircraft and two Dual Control Mobile Ground Control System GCSs. This will be the third system the French have acquired but the first MQ-9 Reaper Block 5. They also signed an LOA for continued Air Worthiness documentation to support the MQ-9 platform. Spain signed an LOA for four MQ-9 Reaper Block 5 aircraft and two Mobile GCSs. This will be the first MQ-9 Reaper Block 5 acquisition for Spain. Spain also signed an LOA providing funding for Air Worthiness documentation, which was signed, to support the Air Worthiness Certification Spain must provide to their Air Worthiness Authority to fly aircraft in their airspace. Lastly, the United Kingdom signed an LOA to continue CLS support for the MQ-9 Reaper Block 1 platform.

There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches			Explanation of Breach
Schedule		<input checked="" type="checkbox"/>	The MILCON APPN breach was previously reported in the December 2012 SAR.
Performance		<input type="checkbox"/>	
Cost	RDT&E	<input type="checkbox"/>	The Follow-On Test and Evaluation and FRP schedule breaches were previously reported in the December 2013 SAR.
	Procurement	<input type="checkbox"/>	
	MILCON	<input checked="" type="checkbox"/>	The Program Office is working to update the APB to clear these breaches.
	Acq O&M	<input type="checkbox"/>	
O&S Cost		<input type="checkbox"/>	
Unit Cost	PAUC	<input type="checkbox"/>	
	APUC	<input type="checkbox"/>	
Nunn-McCurdy Breaches			
Current UCR Baseline			
	PAUC	None	
	APUC	None	
Original UCR Baseline			
	PAUC	None	
	APUC	None	

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone B ACAT II	Feb 2004	Feb 2004	Feb 2004	Feb 2004
Milestone C ACAT II Block 1	Feb 2008	Feb 2008	Feb 2008	Feb 2008
IOT&E for Block 1	May 2008	May 2008	May 2008	May 2008
RAA	Sep 2010	Jun 2012	Jun 2012	Jun 2012
Milestone C ACAT ID Increment 1, Block 5	Mar 2011	Nov 2012	Nov 2012	Nov 2012
FOT&E for Increment I Block 5	Nov 2012	Nov 2013	Oct 2014	Sep 2016¹ (Ch-1)
FRP Decision for Increment I Block 1 and 5	Mar 2013	Jul 2014	Jun 2015	N/A¹ (Ch-2)

¹ APB Breach

Change Explanations

(Ch-1) The current estimate for FOT&E for Increment I Block 5 changed from April 2016 to September 2016 based on thermal management mitigations in work, overlapping test priorities, and limited aircrew availability. The Program Office worked with the test community and the user to address all three of these issues resulting in successful IOC. The Program Office held an Operational Test Readiness Review on December 3, 2015 and received approval from the PEO Intelligence, Surveillance, & Reconnaissance & Special Operations Forces to enter FOT&E. The last test event is projected to be completed in August 2016 with the final test report being delivered by September 30, 2016 which is within the schedule threshold approved at the December 2013 MQ-9 Configuration Steering Board.

(Ch-2) The FRP event changed from TBD to N/A as a result of the August 2013 Air Force Review Board approving the removal of the FRP milestone. The FRP milestone was removed because the program reached maximum production rate in FY 2011; It will be replaced by an In Progress Review. In addition, the program will already have delivered and contracted for the majority of production aircraft at the time of the baselined FRP date.

Notes

RAA includes two fixed GCSs, two mobile GCSs, six PMAI Block 1 aircraft, technical orders, support equipment, initial and readiness spares packages, and logistics support.

The August 2013 Air Force Review Board approved the removal of the FRP milestone and it will be replaced by an In Progress Review. The FRP milestone was removed because the program reached maximum production rate in FY 2011. In addition, the program will already have delivered and contracted for the majority of production aircraft at the time of the baselined FRP date.

Acronyms and Abbreviations

FOT&E - Follow-On Test and Evaluation

GCS - Ground Control Station

IOT&E - Initial Operational Test and Evaluation

PMAI - Primary Mission Aircraft Inventory

RAA - Required Assets Available

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Hunter				
The system's capability must allow a targeting solution at the weapon's maximum range.	The system's capability must allow a targeting solution at a direct attack weapon's maximum range	The system's capability must allow a targeting solution at a direct attack weapon's maximum range	DT ongoing for KPP; AFOTEC IOT&E did not evaluate KPP due to system availability; Full KPP evaluation deferred to future FOT&E	The system's capability must allow a targeting solution at a direct attack weapon's maximum range.
Killer				
System must be capable of computing a weapon's release point, passing required information, at the required accuracy, to the weapon and reliably releasing the weapon upon command.	System must be capable of computing a weapon's release point, passing required information, at the required accuracy, to the weapon and reliably releasing the weapon upon command.	System must be capable of computing a weapon's release point, passing required information, at the required accuracy, to the weapon and reliably releasing the weapon upon command.	AFOTEC IOT&E found KPP operationally effective and suitable	System must be capable of computing a weapon's release point, passing required information, at the required accuracy, to the weapon and reliably releasing the weapon upon command.
Net Ready: The system must support Net-Centric military operations. The system must be able to enter and be managed in the network, and exchange data in a secure manner to enhance mission effectiveness. The system must continuously provide survivable, interoperable, secure, and operationally effective information exchanges to enable a Net-Centric military capability.				
The System must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table.	The System must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP	The System must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the	JITC certified KPP; JITC certification is renewed for each software update	The System must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW-RM Enterprise

3) NCOW-RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	declaration table, 3) NCOW-RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	KIP declaration table, 3) NCOW-RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	Services 4) IA requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
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Requirements Reference

Capability Production Document (CPD) dated January 29, 2007

Change Explanations

None

Acronyms and Abbreviations

AFOTEC - Air Force Operational Test and Evaluation Center
ATO - Approval to Operate
DAA - Designated Approval Authority
DISR - Department of Defense Information Technology Standards Registry
DT - Developmental Testing
FOT&E - Follow-On Operational Test and Evaluation
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Approval to Operate
IOT&E - Initial Operational Test and Evaluation
IT - Information Technology
JITC - Joint Interoperability Test Command
KIP - Key Interface Profile
NCOW-RM - Net-Centric Operations and Warfare Reference Model
TV-1 - Technical Standards Profile

Track to Budget

General Notes

Program Element 0205219F includes funds not associated with the MDAP. This report only reflects funds associated with the MDAP.

RDT&E

Appn	BA	PE
Air Force	3600 07	0205219F
	Project	Name
	675246	MQ-9 Development and Fielding
	675249	(Shared)
Air Force	3600 07	0305205F
	Project	Name
	674755	(Shared) (Sunk)
Air Force	3600 07	0305219F
	Project	Name
	675143	PREDATOR (Shared) (Sunk)

Procurement

Appn	BA	PE
Air Force	3010 07	0205219F
	Line Item	Name
	000075	Other Production Charges (Shared)
Air Force	3010 06	0205219F
	Line Item	Name
	000999	Initial Spares (Shared)
Air Force	3010 05	0305205F
	Line Item	Name
	PRDT01	MQ-1 Mods (Shared) (Sunk)
Air Force	3010 04	0305205F
	Line Item	Name
	PRDTA1	Aircraft Procurement (Shared) (Sunk)
Air Force	3010 04	0205219F
	Line Item	Name
	PRDTB1	MQ-9
Air Force	3010 05	0205219F
	Line Item	Name
	PRDTB2	MQ-9 Mods

MILCON

Appn	BA	PE
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Air Force	3300	01	0205219F	
	Project	Name		
	BHD000	MQ-9 Operations		(Sunk)
	KWRD143	RPA Fixed Ground Control Station Facility		
	RKMF113	Add RPA Weapons School Facility		(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2008 \$M			BY 2008 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	778.8	1365.1	1501.6	1248.3	809.9	1488.8	1346.8
Procurement	9824.0	10175.3	11192.8	9221.7	10866.0	11765.5	10591.4
Flyaway	--	--	--	6831.6	--	--	7863.5
Recurring	--	--	--	6831.6	--	--	7863.5
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	2390.1	--	--	2727.9
Other Support	--	--	--	976.5	--	--	1129.8
Initial Spares	--	--	--	1413.6	--	--	1598.1
MILCON	148.5	53.3	58.6	72.3 ¹	158.9	55.6	77.3
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	10751.3	11593.7	N/A	10542.3	11834.8	13309.9	12015.5

¹ APB Breach

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The Service Cost Position, signed September 10, 2012, to support the MQ-9 Reaper program Milestone C decision is built upon a product-oriented work breakdown structure, based on historical actual cost information to the maximum extent possible, and based on assumptions that are consistent with actual demonstrated contractor and government performance.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition Programs (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	3	3	3
Procurement	388	401	347
Total	391	404	350

Quantity Notes

Procurement quantity is the number of MQ-9 Reaper aircraft. Ground Control Stations (GCS) and other equipment costs are included, but not used as a unit of measure.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	958.7	122.7	115.1	95.7	54.6	0.0	0.0	0.0	1346.8
Procurement	5710.1	945.8	744.7	457.5	509.3	359.5	314.8	1549.7	10591.4
MILCON	74.1	0.0	0.0	3.2	0.0	0.0	0.0	0.0	77.3
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	6742.9	1068.5	859.8	556.4	563.9	359.5	314.8	1549.7	12015.5
PB 2016 Total	6817.4	1013.1	1033.3	1000.0	694.6	387.6	315.7	1044.5	12306.2
Delta	-74.5	55.4	-173.5	-443.6	-130.7	-28.1	-0.9	505.2	-290.7

Funding Notes

"To Complete" procurement costs in the table above primarily include retrofit costs and GCS Block 50 costs.

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	3	0	0	0	0	0	0	0	0	3
Production	0	290	33	24	0	0	0	0	0	347
PB 2017 Total	3	290	33	24	0	0	0	0	0	350
PB 2016 Total	3	284	29	24	21	3	0	0	0	364
Delta	0	6	4	0	-21	-3	0	0	0	-14

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	7.8
2003	--	--	--	--	--	--	12.8
2004	--	--	--	--	--	--	20.9
2005	--	--	--	--	--	--	56.8
2006	--	--	--	--	--	--	10.1
2007	--	--	--	--	--	--	34.0
2008	--	--	--	--	--	--	55.9
2009	--	--	--	--	--	--	38.6
2010	--	--	--	--	--	--	102.8
2011	--	--	--	--	--	--	136.6
2012	--	--	--	--	--	--	106.7
2013	--	--	--	--	--	--	130.9
2014	--	--	--	--	--	--	103.3
2015	--	--	--	--	--	--	141.5
2016	--	--	--	--	--	--	122.7
2017	--	--	--	--	--	--	115.1
2018	--	--	--	--	--	--	95.7
2019	--	--	--	--	--	--	54.6
Subtotal	3	--	--	--	--	--	1346.8

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2008 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	8.9
2003	--	--	--	--	--	--	14.4
2004	--	--	--	--	--	--	22.9
2005	--	--	--	--	--	--	60.7
2006	--	--	--	--	--	--	10.5
2007	--	--	--	--	--	--	34.4
2008	--	--	--	--	--	--	55.4
2009	--	--	--	--	--	--	37.8
2010	--	--	--	--	--	--	99.3
2011	--	--	--	--	--	--	129.6
2012	--	--	--	--	--	--	99.5
2013	--	--	--	--	--	--	120.0
2014	--	--	--	--	--	--	93.4
2015	--	--	--	--	--	--	126.7
2016	--	--	--	--	--	--	108.2
2017	--	--	--	--	--	--	99.7
2018	--	--	--	--	--	--	81.4
2019	--	--	--	--	--	--	45.5
Subtotal	3	--	--	--	--	--	1248.3

FY 2002 RDT&E includes \$7.8M (TY\$) of Defense Emergency Response Funds.

Annual Funding							
3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	4	60.4	--	--	60.4	--	60.4
2003	4	36.8	--	--	36.8	--	36.8
2004	5	67.7	--	--	67.7	2.8	70.5
2005	5	85.8	2.2	--	88.0	5.3	93.3
2006	2	32.2	33.0	--	65.2	44.7	109.9
2007	12	109.4	50.6	--	160.0	151.6	311.6
2008	28	214.2	51.7	--	265.9	80.5	346.4
2009	24	212.3	138.4	--	350.7	186.4	537.1
2010	24	263.8	24.1	--	287.9	245.6	533.5
2011	48	429.8	51.9	--	481.7	140.3	622.0
2012	48	515.4	177.8	--	693.2	211.6	904.8
2013	39	583.2	145.4	--	728.6	150.5	879.1
2014	23	292.0	68.5	--	360.5	143.4	503.9
2015	24	416.1	130.0	--	546.1	154.7	700.8
2016	33	595.9	134.6	--	730.5	215.3	945.8
2017	24	375.7	152.8	--	528.5	216.2	744.7
2018	--	99.2	217.4	--	316.6	140.9	457.5
2019	--	112.3	260.8	--	373.1	136.2	509.3
2020	--	103.8	126.3	--	230.1	129.4	359.5
2021	--	88.7	163.5	--	252.2	62.6	314.8
2022	--	143.5	218.2	--	361.7	77.4	439.1
2023	--	127.6	149.0	--	276.6	76.3	352.9
2024	--	160.2	34.7	--	194.9	52.1	247.0
2025	--	164.9	8.7	--	173.6	45.3	218.9
2026	--	154.2	8.5	--	162.7	42.4	205.1
2027	--	31.5	5.2	--	36.7	6.7	43.4
2028	--	28.8	4.8	--	33.6	9.7	43.3
Subtotal	347	5505.4	2358.1	--	7863.5	2727.9	10591.4

Annual Funding							
3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2008 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	4	68.0	--	--	68.0	--	68.0
2003	4	40.8	--	--	40.8	--	40.8
2004	5	73.1	--	--	73.1	3.0	76.1
2005	5	90.0	2.3	--	92.3	5.5	97.8
2006	2	32.9	33.7	--	66.6	45.7	112.3
2007	12	108.9	50.4	--	159.3	150.9	310.2
2008	28	209.8	50.6	--	260.4	79.0	339.4
2009	24	204.6	133.4	--	338.0	179.6	517.6
2010	24	249.2	22.8	--	272.0	232.1	504.1
2011	48	399.8	48.3	--	448.1	130.5	578.6
2012	48	472.1	162.9	--	635.0	193.9	828.9
2013	39	523.7	130.7	--	654.4	135.1	789.5
2014	23	258.6	60.7	--	319.3	127.0	446.3
2015	24	363.7	113.6	--	477.3	135.2	612.5
2016	33	511.4	115.4	--	626.8	184.8	811.6
2017	24	316.3	128.6	--	444.9	182.0	626.9
2018	--	81.9	179.5	--	261.4	116.4	377.8
2019	--	90.9	211.1	--	302.0	110.2	412.2
2020	--	82.4	100.2	--	182.6	102.7	285.3
2021	--	69.0	127.2	--	196.2	48.6	244.8
2022	--	109.4	166.4	--	275.8	59.0	334.8
2023	--	95.4	111.5	--	206.9	57.0	263.9
2024	--	117.4	25.4	--	142.8	38.3	181.1
2025	--	118.5	6.3	--	124.8	32.6	157.4
2026	--	108.7	6.0	--	114.7	29.8	144.5
2027	--	21.7	3.6	--	25.3	4.7	30.0
2028	--	19.5	3.3	--	22.8	6.5	29.3
Subtotal	347	4837.7	1993.9	--	6831.6	2390.1	9221.7

FY 2002 Procurement includes \$29.1M (TY\$) of Defense Emergency Response Funds.

End Item Recurring Flyaway related costs include aircraft, Multi-spectral Targeting System-B (MTS-B) and government furnished equipment, as well as retrofit costs associated with aircraft and MTS-B.

Non End Item Recurring Flyaway costs include retrofit, GCS and communications. Retrofits include GCS and other miscellaneous communications and sensor retrofits.

Cost Quantity Information		
3010 Procurement Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2008 \$M
2002	4	81.1
2003	4	44.6
2004	5	90.1
2005	5	106.8
2006	2	39.7
2007	12	163.5
2008	28	315.8
2009	24	281.0
2010	24	299.8
2011	48	558.5
2012	48	589.0
2013	39	636.7
2014	23	363.1
2015	24	385.8
2016	33	543.7
2017	24	338.5
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--
2023	--	--
2024	--	--
2025	--	--
2026	--	--
2027	--	--
2028	--	--
Subtotal	347	4837.7

Annual Funding 3300 MILCON Military Construction, Air Force	
Fiscal Year	TY \$M
	Total Program
2009	44.5
2010	2.7
2011	8.4
2012	--
2013	--
2014	18.5
2015	--
2016	--
2017	--
2018	3.2
Subtotal	77.3

Annual Funding 3300 MILCON Military Construction, Air Force	
Fiscal Year	BY 2008 \$M
	Total Program
2009	43.0
2010	2.6
2011	7.8
2012	--
2013	--
2014	16.3
2015	--
2016	--
2017	--
2018	2.6
Subtotal	72.3

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	11/21/2012	11/21/2012
Approved Quantity	48	62
Reference	Milestone C ADM	Milestone C ADM
Start Year	2013	2013
End Year	2014	2014

The Current Total LRIP Quantity is more than 10% of the total production quantity due to Congressional approval to procure 39 Block 5 aircraft in FY 2013 and 23 in FY 2014. The change from the initial LRIP quantity to current LRIP quantity is due to 14 aircraft added to the FY 2013 and FY 2014 profile; eight aircraft added by Congress in FY 2014 and approval to purchase six additional aircraft based on budget.

The MQ-9 Reaper program was broken into two blocks; Block 1 aircraft, providing initial capability to meet the early fielding directed by Congress, and Block 5 aircraft which provides additional power, a redesigned avionics bay, and encrypted communications. The program procured 195 Block 1 aircraft prior to the planned procurement of 155 Block 5 aircraft starting in FY 2013. The LRIP quantities reported in the table above reflect the procurement of Block 5 aircraft only.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Spain	12/21/2015	4	168.3	FMS case SP-D-SAA provides funding for four MQ-9 Reaper Block 5 aircraft, two Mobile Ground Control Stations (MGCS), various support equipment, and Contractor Logistics Support (CLS).
Spain	12/21/2015	0	5.8	FMS case SP-D-GAI provides funding for studies and site surveys for airworthiness certifications.
France	12/7/2015	3	116.6	FMS case FR-D-SAC provides funding for three MQ-9 Block 5 aircraft, two MGCS, and assorted support equipment.
France	12/7/2015	0	5.7	FMS case FR-D-GAI provides funding for technical assistance support of the MQ-9 Reaper Block 5 aircraft, for Tech Assistance support, and for airworthiness certifications.
United Kingdom	11/12/2015	0	63.5	FMS case UK-D-QBQ provides funding for CLS.
United Kingdom	12/10/2014	0	64.1	FMS case UK-D-GAY provides funding for CLS.
Netherlands	9/30/2014	0	3.1	FMS case NE-D-GAO provides funding for airworthiness certification as well as a site survey.
Germany	12/26/2013	0	1.0	FMS case GY-D-GAX provides funding for airworthiness documents, manpower, and travel.
France	8/9/2013	3	340.5	FMS case FR-D-STE provides funding for the purchase of three aircraft, one MGCS, CLS, and support equipment.
United Kingdom	11/10/2011	5	70.1	FMS case UK-D-SMK provides funding for the purchase of five aircraft, four MGCSs, and assorted sensors and support equipment.
Italy	11/20/2008	6	181.5	FMS case IT-D-SAG provides funding for the purchase of six aircraft, three MGCSs, CLS, and assorted support equipment.
United Kingdom	10/4/2007	4	69.1	FMS case UK-D-SMJ provides funding for the purchase of four aircraft, one MGCS, and spares.
United Kingdom	2/14/2007	2	374.9	FMS case UK-D-SMI provides funding for the purchase of two aircraft, two MGCSs, CLS, and assorted support equipment.

Notes

Nuclear Costs

None

Unit Cost

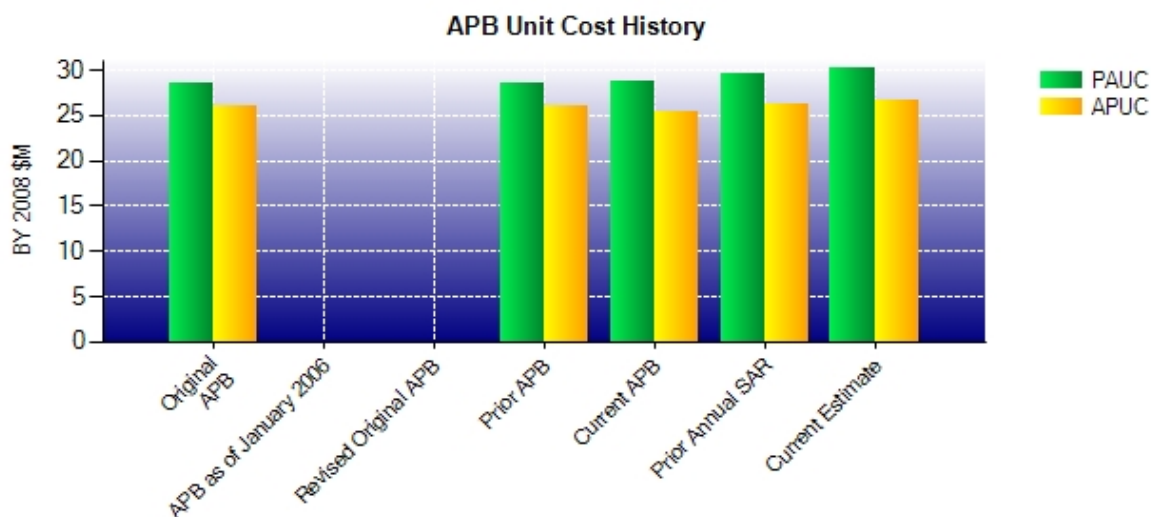
Unit Cost Report

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Current UCR Baseline (Dec 2012 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	11593.7	10542.3	
Quantity	404	350	
Unit Cost	28.697	30.121	+4.96
Average Procurement Unit Cost			
Cost	10175.3	9221.7	
Quantity	401	347	
Unit Cost	25.375	26.576	+4.73

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Original UCR Baseline (Feb 2012 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	11541.3	10542.3	
Quantity	404	350	
Unit Cost	28.568	30.121	+5.44
Average Procurement Unit Cost			
Cost	10402.1	9221.7	
Quantity	401	347	
Unit Cost	25.940	26.576	+2.45

The FY 2017 PB reduced the number of aircraft from the baselined 404 to 350. The aircraft reduction was the primary driver of unit cost growth in both the PAUC and APUC.

Unit Cost History



Item	Date	BY 2008 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2012	28.568	25.940	32.396	29.604
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Feb 2012	28.568	25.940	32.396	29.604
Current APB	Dec 2012	28.697	25.375	32.945	29.340
Prior Annual SAR	Dec 2014	29.614	26.225	33.808	30.163
Current Estimate	Dec 2015	30.121	26.576	34.330	30.523

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
30.268	0.279	1.517	0.225	3.024	-3.155	0.000	2.172	4.062	34.330

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
28.005	0.302	1.263	0.199	1.514	-3.041	0.000	2.281	2.518	30.523

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	Feb 2004	Feb 2004
Milestone C	N/A	N/A	Feb 2008	Feb 2008
IOC	N/A	N/A	Sep 2010	Jun 2012
Total Cost (TY \$M)	N/A	N/A	11834.8	12015.5
Total Quantity	N/A	N/A	391	350
PAUC	N/A	N/A	30.268	34.330

The Milestone C schedule event above reflects the ACAT II Block 1 Milestone C decision. On November 21, 2012 the USD (AT&L) signed an ADM approving the ACAT ID Increment 1, Block 5 Milestone C and delegating MDA to the Air Force.

Milestone Required Assets Available is used in lieu of IOC and was completed on June 30, 2012.

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	809.9	10866.0	158.9	11834.8
Previous Changes				
Economic	-7.4	+156.9	+4.3	+153.8
Quantity	--	-474.3	--	-474.3
Schedule	--	+60.6	--	+60.6
Engineering	+530.1	+414.3	+3.2	+947.6
Estimating	+38.9	-1049.4	-89.1	-1099.6
Other	--	--	--	--
Support	-31.3	+914.6	--	+883.3
Subtotal	+530.3	+22.7	-81.6	+471.4
Current Changes				
Economic	-4.0	-52.0	-0.1	-56.1
Quantity	--	-235.6	--	-235.6
Schedule	+9.5	+8.5	--	+18.0
Engineering	--	+110.9	--	+110.9
Estimating	+1.1	-6.0	+0.1	-4.8
Other	--	--	--	--
Support	--	-123.1	--	-123.1
Subtotal	+6.6	-297.3	--	-290.7
Total Changes	+536.9	-274.6	-81.6	+180.7
CE - Cost Variance	1346.8	10591.4	77.3	12015.5
CE - Cost & Funding	1346.8	10591.4	77.3	12015.5

Summary BY 2008 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	778.8	9824.0	148.5	10751.3
Previous Changes				
Economic	--	--	--	--
Quantity	--	-347.7	--	-347.7
Schedule	--	-6.4	--	-6.4
Engineering	+457.5	+289.4	+2.7	+749.6
Estimating	+31.1	-1022.9	-78.9	-1070.7
Other	--	--	--	--
Support	-27.3	+730.8	--	+703.5
Subtotal	+461.3	-356.8	-76.2	+28.3
Current Changes				
Economic	--	--	--	--
Quantity	--	-193.7	--	-193.7
Schedule	+7.4	+15.2	-0.1	+22.5
Engineering	--	+49.6	--	+49.6
Estimating	+0.8	+9.4	+0.1	+10.3
Other	--	--	--	--
Support	--	-126.0	--	-126.0
Subtotal	+8.2	-245.5	--	-237.3
Total Changes	+469.5	-602.3	-76.2	-209.0
CE - Cost Variance	1248.3	9221.7	72.3	10542.3
CE - Cost & Funding	1248.3	9221.7	72.3	10542.3

Previous Estimate: December 2014

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-4.0
Adjustment for current and prior escalation. (Estimating)	+1.8	+2.0
Schedule delays due to Air Force funding adjustments in FY 2014 and FY 2015 which resulted in the inability to begin Multi-Transit Operations development and delayed initial design reviews of Ground Control Station (GCS) Block 50 Development. (Schedule)	-7.0	-7.8
Schedule adjustment due to Air Force funding adjustments which will enable the ramp up of Technology Maturity efforts for Hybrid Release 1. (Schedule)	+14.4	+17.3
Revised estimate due to OSD levied funding adjustment in FY 2016. (Estimating)	-0.7	-0.7
Revised estimate due to the removal of funds for the MQ-9 Reaper Modernization Program. (Estimating)	-0.3	-0.2
RDT&E Subtotal	+8.2	+6.6

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-52.0
Adjustment for current and prior escalation. (Estimating)	+12.5	+14.4
Quantity variance resulting from a decrease of 14 MQ-9 Reapers from 361 to 347. (Quantity)	-193.7	-235.6
Acceleration of procurement buy profile from FY 2018 and FY 2019 to FY 2013 and FY 2014; primarily due to the movement of six aircraft (three in each affected year) . (Schedule)	0.0	-9.9
Additional schedule variance due to delays in the Block 50 GCS production program from FY 2016 to FY 2018. (Schedule)	+15.2	+18.4
Revised estimate due to the removal of funds for the MQ-9 Reaper Modernization Program. (Estimating)	-31.9	-53.4
Revised estimate due to addition of Overseas Contingency Operations for six additional GCSs in support of Government Owned Contractor Operated stand-up. (Estimating)	+28.8	+33.0
Additional funding for 21 Block 50 GCSs requirements. (Engineering)	+49.6	+110.9
Adjustment for current and prior escalation. (Support)	+4.5	+4.9
Decrease in Other Support due to decrease in production line shut down estimated cost. (Support)	-46.6	-42.4
Decrease Initial Spares resulting from a decrease of 14 aircraft. (Support) (QR)	-83.9	-85.6
Procurement Subtotal	-245.5	-297.3

(QR) Quantity Related

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
Revised estimate as a result of a delay in required storage facility for Block 50 GCS.	-0.1	0.0

(Schedule)		
MILCON Subtotal	0.0	0.0

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: MQ-9 System Development and Demonstration Bridge DO 49
Contractor: General Atomics Aeronautical Systems, INC.
Contractor Location: 14200 Kirkham Way
 Poway, CA 92064
Contract Number: FA8620-05-G-3028/49
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: July 17, 2009
Definitization Date: July 17, 2009

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
39.3	N/A	N/A	107.5	N/A	N/A	157.5	157.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract overruns, rebaselining and contract modifications.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	-42.2	-0.9
Previous Cumulative Variances	-34.6	-4.4
Net Change	-7.6	+3.5

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to unplanned/unscheduled on-wing certification events and test and evaluation support to incorporate software change requests. Unrecoverable cost variances have been captured in three overrun modifications totaling \$46.8M. They were awarded in November 2011 for \$5.9M, February 2014 for \$12.1M, and October 2014 for \$28.8M. Total contract variance to date is \$-42.2M.

The favorable net change in the schedule variance is due to completion of contract events. Development testing has completed and Follow-On Test & Evaluation (FOT&E) began January 27, 2016.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: MQ-9 CY11 Spares & Support Equipment
Contractor: General Atomics Aeronautical Systems, INC.
Contractor Location: 14200 Kirkham Way
 Poway, CA 92064
Contract Number: FA8620-10-G-3038/1
Contract Type: Firm Fixed Price (FFP)
Award Date: July 12, 2012
Definitization Date: July 12, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
120.6	N/A	N/A	138.6	N/A	N/A	138.6	138.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to engineering change orders and contract modifications.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: Block 30 GCS Retrofit
Contractor: General Atomics Aeronautical Systems, INC.
Contractor Location: 14200 Kirkham Way
 Poway, CA 92064
Contract Number: FA8620-10-G-3038/14
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: September 29, 2011
Definitization Date: September 29, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
65.0	N/A	N/A	65.7	N/A	N/A	64.7	64.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to engineering change orders and contract modifications.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	+1.5	-1.5
Previous Cumulative Variances	+4.7	-0.5
Net Change	-3.2	-1.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to a quality configuration issue with the sizing of the display monitor; a corrective action plan was implemented and closed in October 2015. Contract is expected to complete with an underrun.

The unfavorable net change in the schedule variance is due to a quality configuration issue with sizing of the display monitor which is preventing the production orders from closing. A contract modification is expected to extend the period of performance to September 2016.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: FY13 MQ-9 Reaper Production
Contractor: General Atomics Aeronautical Systems, INC.
Contractor Location: 14200 Kirkham Way
 Poway, CA 92064
Contract Number: FA8620-10-G-3038/50
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: October 15, 2013
Definitization Date: December 12, 2014

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
213.8	233.4	24	213.8	233.4	24	214.4	215.6

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	-4.7	-1.1
Previous Cumulative Variances	+4.5	+8.9
Net Change	-9.2	-10.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to material dollars that have come in for partial bomb racks but credit will not be claimed until the entire unit is received. No impact expected to delivery schedule.

The unfavorable net change in the schedule variance is due to Government directed reprioritization of labor to accelerate the Electrical Safety Improvement Program kit production ahead of the MQ-9 Reaper Block 5 aircraft production.

Contract Identification

Appropriation: Procurement
Contract Name: FY14 MQ-9 Reaper Production
Contractor: General Atomics Aeronautical Systems, INC.
Contractor Location: 14200 Kirkham Way
 Poway, CA 92064
Contract Number: FA8620-10-G-3038/77
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: February 04, 2015
Definitization Date: February 04, 2015

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
221.0	237.1	24	292.9	313.4	32	293.1	292.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an additional eight aircraft being added to the contract in May 2015.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	+2.3	+10.5
Previous Cumulative Variances	0.0	0.0
Net Change	+2.3	+10.5

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to savings in program management due to a slower ramp up in staffing than anticipated.

The favorable cumulative schedule variance is due to the early distribution of seven engines. There is no expected impact to the overall delivery schedule.

Contract Identification

Appropriation: RDT&E
Contract Name: BLK 50 GCS Development (DO 89)
Contractor: General Atomics Aeronautical Systems, INC.
Contractor Location: 14200 Kirkham Way
 Poway, CA 92064
Contract Number: FA8620-10-G-3038/89
Contract Type: Cost Plus Fixed Fee (CPFF)
Award Date: April 10, 2014
Definitization Date: April 10, 2014

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
141.4	N/A	7	141.4	N/A	7	206.2	209.2

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	-0.1	+1.0
Previous Cumulative Variances	--	--
Net Change	-0.1	+1.0

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the delayed start in program execution. The replanned discrete tasks commenced in November 2015 and no additional overrun is projected at this time.

The favorable cumulative schedule variance is due to the program being ahead of schedule on several key tasks to complete Preliminary Design Review (PDR) two months early.

General Contract Variance Explanation

Block 50 Ground Control Station development program conducted an Integrated Baseline Review (IBR) of the program in August 2015. All actions related to the IBR have been successfully closed and the program is executing to an approved baseline. As part of the IBR closure the contractor submitted an Over Target Baseline of \$65M and a Period of Performance extension of approximately 38 months.

Notes

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	3	3	3	100.00%
Production	214	204	347	58.79%
Total Program Quantity Delivered	217	207	350	59.14%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	12015.5	Years Appropriated	15
Expended to Date	4727.3	Percent Years Appropriated	55.56%
Percent Expended	39.34%	Appropriated to Date	7811.4
Total Funding Years	27	Percent Appropriated	65.01%

The above data is current as of February 10, 2016.

Ten aircraft have been conditionally accepted. Actual aircraft deliveries are less than planned due to contractor manpower issues for aircraft integration, as well as Secure Triple-Link Modem Assembly (STMA) diminishing manufacturing sources & material shortages (DMSMS). In order to facilitate these deliveries, the Government supplied STMA's via Government Furnished Equipment (GFE). This GFE solution is a temporary fix until a new Generation 3 STMA is fully qualified which is anticipated for February 2016. Further aircraft deliveries are pending fielding of operational flight program software and the qualification of the Generation 3 STMA.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	November 24, 2015
Source of Estimate:	POE
Quantity to Sustain:	350
Unit of Measure:	Aircraft
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	FY 2002 - FY 2044

The O&S costs are from the current POE which is based on historical costs and estimated future costs through 2044. The O&S estimate includes all CAPE elements as detailed in the table on the following page. The MQ-9 Reaper has been flying operations since 2006.

Historical costs are obtained from monthly Contractor Logistics Support (CLS) cost reports, Air Force Total Ownership Cost (AFTOC) actuals, and other data sources. Future costs are based on flying hour projections, manpower projections, number of operating locations, and applicable rates and factors. Flying hours are based on the number of anticipated Combat Air Patrols (CAPs). The total MQ-9 Reaper life cycle flying hours are based on the Air Combat Command (ACC) MQ-9 Reaper standup plan, ACC projected flight hours per CAP, and the defined MQ-9 Reaper life cycle. The attrition rate is based upon the official Air Force Studies and Analysis MQ-9 Reaper attrition model. Quantity of aircraft per CAP will continue to vary based on mission requirements and future operations.

Unit-Level Manpower costs are estimated using manpower projections. Unit Operations cost factors include fuel, training munitions, and temporary duty costs. Maintenance costs include Operational-level, Depot-level (D-level), and Government Furnished Equipment repair. Sustaining support includes D-level sustaining engineering and program management and system specific training derived from actual costs from the AFTOC database, and converted to a cost per flying hour. Continuing System Improvements costs include Reliability & Maintainability Enhancements and Software Maintenance supported via the CLS contract. Indirect Support costs are based on factors from Air Force Instruction 65-503 table A56-1, which were applied against manpower projections.

Sustainment Strategy

Sustainment of the MQ-9 Reaper systems is currently provided through CLS contracts with General Atomics, Aeronautical Systems Incorporated (GA-ASI), and Raytheon. The CLS contracts include program management, logistics support, configuration management, technical manuals, software maintenance, engineering technical services, contractor field service representative support, contractor inventory control point, spares management, depot repair, flight operations support, reliability and maintainability studies, maintenance data collection/entry and depot field maintenance. Supported organizations include ACC, Air National Guard, Air Force Special Operations Command, Air Education and Training Command. The Program Office (PO) is working to transition portions of CLS to a Public Private Partnership that leverages original equipment manufacturer and organic capabilities. Currently, the Air Force Sustainment Center has entered into a Public Private Partnership Agreement with GA-ASI and the Fleet Readiness Center-Southeast has entered into a Public Private Partnership Agreement with Raytheon for depot repair on certain components for the MQ-9 Reapers and Multi-Spectral Targeting System, respectively.

Antecedent Information

The antecedent program for the MQ-9 Reaper is the MQ-1 Predator. The MQ-1 Predator O&S costs are based on the current POE which utilizes the same methodology as the MQ-9 Reaper O&S estimate. The MQ-1 Predator O&S costs

are based on 268 aircraft and a service life of 21 years, with a planned divestiture of the program within the FYDP.

The MQ-1 Predator total BY 2008 O&S figure may be computed by multiplying the average cost per flying hour for each cost element category (totaling \$3.523K) by the total flying hours of the MQ-1 Predator program (2,025,397). The total MQ-1 Predator O&S figure increased from the figure reported in the December 2014 SAR due to the extension of the planned divestiture of the MQ-1 Predator to within the current FYDP. From a cost per flying hour perspective the MQ-9 Reaper's costs vary slightly from its antecedent program, the MQ-1 Predator.

Annual O&S Costs BY2008 \$M		
Cost Element	MQ-9 Reaper Average Annual Cost Per Aircraft	MQ-1 Predator (Antecedent) Avg Annual Cost Per Aircraft
Unit-Level Manpower	1.588	0.409
Unit Operations	0.325	0.291
Maintenance	1.262	0.413
Sustaining Support	1.398	0.027
Continuing System Improvements	0.161	0.119
Indirect Support	0.696	0.071
Other	0.000	0.000
Total	5.430	1.330

The average cost per flying hour for a MQ-9 Reaper is \$3.538K. The flying hour projection is based on the updated flying hour profile received from ACC. The PO utilized a bottoms-up cost estimating approach to estimate the MQ-9 Reaper life cycle cost.

Item	Total O&S Cost \$M			
	MQ-9 Reaper			MQ-1 Predator (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	47215.4	51936.9	38011.0	7135.5
Then Year	65058.9	N/A	54763.5	N/A

The total O&S cost was derived through: i) analysis of manpower projections, and ii) actual historical data and estimated out year data. The total O&S costs do not include disposal costs.

Equation to Translate Annual Cost to Total Cost

The average annual cost per aircraft is derived by dividing the total life cycle cost by the number of aircraft and number of years the program is in operation. $\$38,011.0\text{M (BY life cycle cost)} / 350 \text{ (total aircraft)} / 20 \text{ (years in operation)} = \5.43M

O&S Cost Variance		
Category	BY 2008 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	41626.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	-3615.0	Revised flying hour calculation methodology, resulting in a decrease of projected flying hours.

Cost Data Update	0.0
Labor Rate	0.0
Energy Rate	0.0
Technical Input	0.0
Other	0.0
Total Changes	-3615.0
Current Estimate	38011.0

Disposal Estimate Details

Date of Estimate: November 24, 2015
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2008 \$M): Total costs for disposal of all Aircraft are 19.2

The MQ-9 Reaper disposal cost estimate is based on the current POE and assumes cold storage. The estimate utilizes various factors such as aircraft quantity and weights to calculate shipping costs, demolition costs, and disposal of hazardous materials.